

This bird, Severtzoff states, belongs to the same group as *Parus palustris*, *P. borealis*, *P. cinctus*, and *P. lugubris*, but differs from the last two as much as from *P. palustris*. The crown, nape, and hind neck are black, this colour extending to the centre of the back; throat black, the feathers edged with brownish white in autumn; cheeks dirty white, tinged with greyish brown; back, rump, shoulders, lower throat, breast, abdomen, and flanks, as well as the under tail-coverts, brownish, darkest on the shoulders, and lightest, almost white, near the black patch on the throat; wing-coverts and the three innermost secondaries dark brownish grey, with broad light edges, the remaining quills and the rectrices blackish brown; bill black, with greyish brown end and margins; legs dark bluish lead. First primary short, $4=5>6>7>3>8>9>2>10$, or $4=5=6>7>3>8>9>10>2$; the 4th and 5th rectrices longest, the central ones being 1''' shorter, and the outer ones 2''' shorter. Total length 5'' 6''', extent 9'', wing 2'' 8''', tail 2'' 5''', tarsus $7\frac{1}{2}$ ''', middle toe $4\frac{1}{2}$ ''', hind claw 3''', culmen $4\frac{1}{2}$ '''.

It inhabits the fir-forests on the Thian-shan range.

179. *PANURUS BIARMICUS* (L.).

Panurus barbatus, Severtzoff, p. 66.

Horizontal range. Resident in districts I., II., and III.

Vertical range. Resident in districts 1 and 2.

[To be continued.]

XI.—*On the Assignment of a Type to Linnæan Genera, with especial reference to the Genus Strix.* By ALFRED NEWTON, M.A., F.R.S., &c.

THAT some of my brethren should demur to the opinion I expressed a few years ago (Yarrell, *British Birds*, ed. 4, vol. i. p. 150) as to the species which ought properly to be considered the type of the Linnæan genus *Strix*, was a thing fully expected by me; indeed I had anticipated a stronger resistance than any which my views have hitherto encountered. So far as I am aware, the only opposition offered thereto lies in the comparatively mild protest of the editor of

'The Ibis' (1875, pp. 66, 67, footnote), and in one of the papers by which Mr. Sharpe has enriched the well-endowed literary history of the *Accipitres* (*tom. cit.* pp. 324-328). Still the authority which each of these gentlemen wields, and the learning which they both possess, is so great, that all must feel that as much as can be said on their side of the question has been said; and when I add that this has not shaken my belief, I cannot but entertain a hope that I shall not be driven from the position I found myself (not without considerable reluctance) compelled to take up. But it seems to me that a fuller statement of the facts of the case than I had room originally to make, may not be without its use to those who perhaps may be halting between the two opinions; while courtesy itself requires of me some reply to my friendly critics. Besides this I have an error, which they have not detected, to acknowledge, and, if possible, to repair; while, furthermore, it appears to me that some advantage may follow from a consideration of the method which should be adopted in assigning a "type" to the genera of authors to whom the notion of a type species, as we nowadays understand it, was altogether strange. This last, indeed, may be said to underlie the whole question I propose to discuss; and, having an important general bearing, I proceed to take it first.

When the existing notion of a type species was first propounded, and when it became generally adopted, are matters upon which I need not now enter, even if I felt myself competent to treat of them. They may for the present be left until some one shall write the history of systematic biology. It will hardly be denied, I think, by any one having a moderate acquaintance with the works of Linnæus, that no such notion was ever entertained by him, though one would suppose that it must have presented itself to his mind, from the fact that it was familiar to, and was almost constantly acted upon by his contemporary, Brisson. Yet we may search the writings of Linnæus in vain not only for the word "type," used in the meaning of modern systematists, but, if I mistake not, even for any expression equivalent to it. It therefore follows that extreme caution must be used in the assignation

of a type to any of his genera; and the only mode of avoiding errors in so doing, is by making him the interpreter of his own intentions. It is not that we have to put ourselves in his place, but to imagine him put in ours, and called on to show which he would consider his type species according to modern ideas.

Fortunately this process is by no means so difficult to effect as might at first sight appear; and, after some study, I think the types of Linnæan genera can be determined to the satisfaction of any reasonable mind, accurately in more than two thirds of the cases, and within very narrow limits in several others. All naturalists have long been accustomed to look upon Linnæus as a great reformer; and so he unquestionably was; but he showed himself in nothing greater than in the manner of effecting his reforms. Wherever he could he built on ancient foundations. No man could be more conservative than he in retaining, when possible, an old name; and hence it only requires some degree of attention to the works of his predecessors, to hunt down almost every name used by him, and, so far as ornithology is concerned, care and common sense seem to be all that is wanted. When we find Linnæus using an old name, we generally find him citing the author from whom he borrows it; and therefore the discovery of its origin costs but little trouble; for we all know that the amount of ornithological literature in his day was very small.

Of the 78 genera which Linnæus, in the 12th edition of his '*Systema Naturæ*,' established for the class *Aves*, I cannot find more than twelve the name of which he can be said to have invented; and I will not answer for it that the use of some of these by prior or contemporary authors may not have escaped me. Howbeit these twelve seem to be:—

<i>Rhamphastos</i> ,	<i>Diomedea</i> ,	<i>Mycteria</i> ,	<i>Didus</i> ,
<i>Buceros</i> ,	<i>Phaeton</i> ,	<i>Cancroma</i> ,	<i>Numida</i> ,
<i>Procellaria</i> ,	<i>Palamedea</i> ,	<i>Parra</i> ,	<i>Pipra</i> .

All the rest are names adopted from his predecessors, by whom the majority were used absolutely and in a specific sense. When this was the case there can scarcely be a reasonable

doubt that Linnæus, had he known our modern practice, would have designated as the type of his genus that species to which the name he adopted as generic had formerly been specifically applied. This has long appeared to me such an obvious truth, that I cannot but wonder at those who invented an arbitrary rule for the selection of a Linnæan type*. It is true that there are some names which had been used by the præ-Linnæan authors in a generic sense; and we know that in such cases they were very apt to distinguish the different species by a numeral or other epithet; but it is curious to find how few names of this kind were adopted by Linnæus, not perhaps more than a dozen in all. Such are

<i>Vultur,</i>	<i>Gracula,</i>	<i>Larus,</i>	<i>Emberiza,</i>
<i>Falco,</i>	<i>Mergus,</i>	<i>Tetrao,</i>	<i>Motacilla,</i>
<i>Psittacus,</i>	<i>Colymbus,</i>	<i>Columba,</i>	<i>Parus.</i>

Of course in most, or all, of these instances it would be hopeless to attempt to fix the type accurately, though we may do so approximately, as with *Tetrao* and *Parus*, and that within very narrow limits.

However, the old names, previously used in a specific sense, but taken and applied by Linnæus to his genera, form, as I have said, the majority of his 78. The authors from whom he adopted them, as proved by his reference to their works, are Gesner, Belon, Aldrovandus, Clusius, Johnston, Brown, Barrere, Klein, Mœhring, Brisson, and perhaps one or two others. It is, of course, an undoubted fact that with Lin-

* I refer particularly to the rule, followed to some extent by the late Mr. G. R. Gray, which enjoined the selection of the first species named in a genus as its type. It is needless to observe that though Mr. Gray professed to regard this rule, in practice he was constantly doing otherwise. I cannot help remarking that it seems to have been thought by Linnæus, and by others of his school, that all nature might be deployed in a single linear series; and thus he arranged his species so that one genus should follow naturally upon another. By this means the most normal forms were of course placed in the middle, and the most aberrant at the beginning and the end; so that the effect of the rule which Mr. Gray admired would be that one of the most aberrant species of a genus would often have to be considered its type.

næus, and with him only at a late period of his life, begins the binomial* method of nomenclature which we employ; and assuredly I have no desire to set aside, or even to impugn, that system of terminology which naturalists have for more than a century found so useful and have so generally adopted. But it must not be forgotten that great men lived before Linnæus; and every one who wishes to interpret him must study the works by which he was so much guided. I have heard it rumoured that the principle I am now advocating is of a most revolutionary tendency, and that its effect will be to upset the foundations of the so-styled "science" of nomenclature. I would therefore beg a little space to see if this be so or not. I have tried to find how that principle, if accepted, would work; and here is the result.

According to this view, I take it that the type species of

* It surprises me to find that there are still some who write and speak of the "binominal" method of nomenclature. A "binomial" method signifies a method involving the use of *two terms*—that is, in biological nomenclature, a generic and a specific term which, together, make up the name of the object. A "binominal" method, as almost any dictionary would tell us, would mean a method in which each object should have *two names*. Unfortunately far too many species are in the strict sense "binominal," or even "multinominal;" for there are comparatively few which have not a synonym, or synonyms, as well as a name. The hero who was indifferently known as Ascanius or Iulus, the river called by some Eridanus and by others Padus, may be each properly spoken of as being "*binominis*," i. e. "binominal;" but that appellation could not be applied to Numa Pompilius or Ægos Potamos. Consider, too, the awkwardness of the word "binominal" in the sense that some would use it. We should have a "binominal" name—a name, that is, having two names! Now a "binomial name" is an expression grammatically and logically correct, a name composed of two terms, just such a name as botanists and zoologists use for the creatures they study and speak of. But then it may be objected that "binomial" is a hybrid word, and, accordingly, not to be used by any writer who cares for the purity of his style. Such an objector, if he exists, ought in consistency to eschew such words as "nomenclature" and "terminology," and certainly ought not to use such a barbarism as "polynominalism"! Sufficient to say that *nomos* had been engrafted in Pliny's time on the Latin tongue to render its composition with *bi-* classical or semiclassical; but even if this were not the case, who could justly object to a word which has been in universal use since the greatest of mathematicians bestowed it on the Binomial Theorem?

56 Linnæan genera may be, without fear of error, determined. They are as follows :—

Genus.	Type.	Genus.	Type.
Strix (of which more presently).		Cancroma :	C. cochlearia.
Lanius :	L. excubitor.	Ardea :	A. cinerea.
Buphaga :	B. africana.	Tantalus :	T. loculator.
Crotophaga :	C. ani.	Recurvirostra :	R. avocetta.
Corvus :	C. corax.	Hæmatopus :	H. ostralegus.
Oriolus :	O. galbula.	Fulica :	F. atra.
Paradisæa :	P. apoda.	Parra :	P. jacana.
Bucco :	B. capensis.	Rallus :	R. aquaticus.
Cuculus :	C. canorus.	Psophia :	P. crepitans.
Jynx :	J. torquilla.	Otis :	O. tarda.
Picus :	P. martius.	Struthio :	S. camelus.
Sitta :	S. europæa.	Didus :	D. ineptus.
Alcedo :	A. ispida.	Pavo :	P. cristatus.
Merops :	M. apiaster.	Meleagris :	M. gallopavo.
Upupa :	U. epops.	Crax :	C. alector.
Certhia :	C. familiaris.	Phasianus :	P. colchicus.
Trochilus :	T. colubris.	Numida :	N. meleagris.
Alca :	A. torda.	Alauda :	A. arvensis.
Procellaria :	P. pelagica.	Sturnus :	S. vulgaris.
Diomedea :	D. exulans.	Turdus :	T. viscivorus.
Pelecanus :	P. onocrotalus.	Ampelis :	A. garrulus.
Plotus :	P. anHINGA.	Loxia :	L. curvirostra.
Phaeton :	P. æthereus.	Tanagra :	T. tatao.
Rhynchops :	R. nigra.	Fringilla :	F. cœlebs.
Sterna :	S. hirundo.	Muscicapa :	M. grisola.
Phœnicopterus :	P. ruber.	Pipra :	P. leucocilla.
Platalea :	P. leucorodia.	Hirundo :	H. rustica.
Mycteria :	M. americana.	Caprimulgus :	C. europæus.

The result does not seem to me so very subversive of currently accepted nomenclature. Out of the 56 genera in the foregoing list, (excepting *Strix*, which I must treat in detail,) only about three or four would appear to have, from my way of regarding them, a type other than that commonly assigned to them. Indeed I can fancy some of my readers exclaiming, Why should all this fuss be made about a matter on which ornithologists are generally agreed? My answer to this is, that ornithologists have almost always acted upon the principle I enjoin, and this is a strong point in its favour. The few cases in which the principle has been departed from

are so few that they may be safely and wisely discarded for the sake of uniformity and consistency. It is possible that there may be some three or four more Linnæan genera (but certainly not half a dozen) in which, by the application of this principle, the true type is discoverable; but even these, supposing them all to go against the generally accepted view (and it is, of course, by no means certain that they would), could not disturb more than a very small number of genera and ought not to flutter the most conservative of ornithologists, while only by those (if unhappily there are such) who have sinned against light and knowledge should the principle be regarded with disfavour.

I now return to the genus *Strix*, which is the cause of these tedious remarks, and first have to deal with Mr. Salvin's note (*Ibis*, 1875, pp. 66, 67). According to him I "truly" said "that *Strix aluco* is Brisson's type of the Linnæan genus *Strix* as restricted." Now, unfortunately, I did not say this truly; and herein lies the error I have to acknowledge. I shall urge little or nothing in extenuation of my crime. It would only protract the present paper to show how many others, from Savigny to my critics, have fallen into it; but error it undoubtedly is, as I hope to prove without fear of contradiction.

The type assigned by Brisson (*Orn.* i. p. 500) to his genus *Strix* (which is, saving the species removed to form his genus *Asio*, also that of Linnæus) is *le Chat-huant*. On that point all will agree; and all will also agree that his *Chat-huant*, or type of *Strix*, is, as Brisson's excellent description shows, the bird which we in England know as the Brown or Tawny Owl, the species which has been frequently called *Syrnium aluco*, and repeatedly figured under that name or some admitted equivalent of it. But this species was not only described by Brisson. He also gave a long list of references to other authors whom he, rightly or wrongly, believed to have mentioned the same bird. The only one of these with which we need now trouble ourselves is the first, from the 'Fauna Suecica' (p. 18)—the edition of 1746 of course. Brisson correctly quotes Linnæus's short diagnosis of the latter's "No. 55," with a refer-

ence to that number. Turning thereto we further read, "Habitat in sylvis frequens per Sueciam;" and then, coming to the second edition of the 'Fauna' (1761), we have (p. 26):—

"77. STRIX *Stridula* [. . . .], Fn. 55."

—this being Linnæus's mode of quoting the former edition of his work, and one more addition:—

"*Svecis* Skrik Uggla."

Now no one can doubt what Linnæus meant by this bird. His diagnosis may not be the most accurate; but the "Skrik Uggla" of the Swedes, the Owl which is common in the forests throughout Sweden—that is, except in the then little-known north of that country—is just as surely our Brown or Tawny Owl as Brisson's "Chathuant" is. Thus the last, or Brisson's type of *Strix*, is also the *S. stridula* of Linnæus; for I need not say that in both of the subsequent editions of the 'Systema Naturæ' (10th and 12th) the same species retains that name; but I must add that if there be any truth in the opinions I have above advanced, this, and this only, can be interpreted as the Linnæan type of the genus *Strix*; for, as Linnæus himself rightly states, it is emphatically the "*Strix*" of Gesner, of Aldrovandus, of Willughby, and of Ray. Finally, to clinch the whole matter, Linnæus himself asserts in the 12th edition that it is the "*Strix*" of Brisson.

In rectifying my error, I wish it were possible for me to prove as clearly what the *S. aluco* of Linnæus really was; but the matter does not very much signify, and it will be unnecessary for me here to repeat each step of the investigation. A very little trouble will show that this species is founded upon an Owl which, he tells us (Öländska och Gothländska Resa, p. 69), he, on the 5th of June, 1741, had an opportunity of describing at the woodman's (*hos Skogwachtaren*) at Åhrby, in the south of Öland; and the description which he there gives is but a briefer form of that which appeared five years afterwards in the 'Fauna.' I express no very decided opinion; but my impression is that the bird was most likely a Barn-Owl*, a species known to be rare in Sweden and its islands,

* He writes "*Remiges* 1. 2. 3. sensim breviores." Now this is not absolutely true of the Barn-Owl, wherein the second primary is longer than

but occasionally occurring there. Had the bird been a Tawny Owl, one would think he would have recognized its specific identity with that which is so common in the Swedish woods. Besides this, though in the 1746 edition of the 'Fauna' he had cited as the same as this bird the "*Ulula*" of Gesner, Aldrovandus, Willughby, and Ray, in his subsequent edition of the same work (1761) he substituted for these references the "*Aluco*" of the last two authors, and of Albin, who had in the mean time published a recognizable figure; and there cannot be a doubt of their *Aluco* being the Barn-Owl. Be that as it may, the *S. aluco* of Linnæus is not (as I unfortunately said it was) the type of his genus *Strix*, nor of Brisson's, but the *S. stridula* is the type of both.

Now the evidence as to what must be deemed the original type of the Linnæan genus *Strix* is either "perfectly clear and indisputable"* or it is not. From what I have above urged I think it may be regarded as clear. One cannot doubt what is meant by the *Strix* of Gesner, Aldrovandus, Willughby, Ray, and Brisson. Switzer, Italian, Englishmen, and Frenchman agree. Was the Swede, coming after them and quoting them all, likely to have intended that a new meaning should be attached to the word by his use of it without indicating that such was the case? If an ornithologist of the present day had the power of questioning Linnæus as to which species, according to modern notions, he would designate the type of his genus *Strix*, who can doubt what his answer would be? "*Quod semper, quod ubique, quod ab omnibus—id accepi.*"

But supposing this view of the case to be disallowed, owing to the difficulty of obtaining any answer from the great departed, and the evidence as to the Linnæan type be deemed inconclusive, then, in the words of the British-Association Code†, "the person who first subdivides the genus may affix

the first and third, which are equal; but the difference between all three is not much. On the other hand, in the Tawny Owl the first primary is very short, and the fourth is the longest.

* Rules of Zoological Nomenclature, § 5.

† *Loc. cit.*

the original name to any portion of it at his discretion, and no later author has a right to transfer that name to any other part of the original genus." This will bring about exactly the same result ; for there is no question as to Brisson having been the first to subdivide the genus. But, says the Editor of 'The Ibis,' " does the rule which admits the *additional* Brissonian genera give Brisson any right to define other Linnæan genera ? We think not." I think very differently. Where is any limitation of Brisson's rights in regard to genera expressed ? His genera are brought in by a special enactment ; but, once admitted, they are exactly on the same footing, to stand or fall, as those of anybody else. His specific names, we know, are rejected, but that is simply because he did not adhere to the binomial system of nomenclature which we adopt, and very rightly are they rejected. Had his book been published a few years later, or had the Code enacted that the 10th edition of the 'Systema' should be the point of departure, there would have been no need to treat him exceptionally as regards his genera. If the law is to be followed, it must be followed in all things save such as are especially excepted ; and of such excepted things there is in this case but one, the matter of specific names. Why are Brisson's privileges, which, owing to his great merits, have been deservedly recognized, to be pared down beyond the letter of the law ? Mr. Salvin's principle appears to me to be not only arbitrary, but contrary to the principle of all law, or English law at least. It is well known that any statute of disabilities has to be construed in the sense most favourable to the person disabled ; and if Brisson's specific names are disallowed, the disability rests there, it can have nothing to do with his generic divisions and their natural consequences.

But I am not sure that I am not here arguing needlessly. I have already said that if Brisson's book had been published a few years later, there would have been no need for any exceptional treatment of him whatever. Now I once before pointed out in this Journal (*Ibis*, 1865, p. 97, note) that an "edition of his work was published in 1788 ; and being thus subsequent to the appearance of Linnæus's *twelfth* edition,

the genera defined in it can stand of their own right from that date, under the exact words of the rule." That this edition exists, I believe there is no doubt, though I have never set eyes on a copy. Had I done so, and found it to agree in this respect with the edition of 1760, I should be sure that the preceding paragraph was unnecessary; but lacking the opportunity of knowing whether this is the case or not, I am unable to substantiate what would be absolutely conclusive.

And now to meet such of Mr. Sharpe's objections as I have not already, I trust, disposed of. It is clear that considerable doubt must exist as to Linnaeus's *Strix aluco*; and therefore one cannot declare that his "No. 9 is identical with No. 7." It is impossible that Brisson's arrangement "influenced Linnaeus in his classification;" for Linnaeus had already divided the Owls into "*Auriculatæ*" and "*Inauriculatæ*" in the 10th edition of his 'Systema,' written three years before* Brisson's work appeared; but it is probable that both authors followed the earlier systematists, Willughby and Ray, in this obvious division. It is hardly consistent with fact to say of the genus *Strix* that "no type had previously been assigned" until Savigny designated *S. flammea* as such; for, even if Linnaeus's type be disallowed, we have that of Brisson plainly determined, and consequently Savigny was not "perfectly justified" in doing as he did, while, on the other hand, Fleming, in separating *S. flammea* as the type of his new genus *Aluco*, and restoring *S. stridula* to the genus *Strix*, was acting strictly within rule. Of the praise which Mr. Sharpe awards to Savigny, I have only to say that perhaps, had the latter's ambitious work been completed, we might possibly have hailed him as a reformer of nomenclature superior to Linnaeus; but perhaps it is as well that the 'Oiseaux de l'Egypte et de la Syrie' remains a fragment; for no one can go over the long list of references to ancient authors, on which most of his decisions are based, without seeing that a large number of them are, and must be, hypothetical in the highest degree.

* This edition was published in 1758; but the preface is dated 24th May, 1757.

To sum up my answer to the objections made. I maintain :—

(1) That the type, according to the modern notion, of the Linnæan genus *Strix*, is clearly and indisputably *S. stridula*.

(2) That in subdividing a genus Brisson's right to affix its original name to the portion of it he chose is not affected by his exceptional position as regards specific names, and that the type of his restricted genus *Strix* is also *S. stridula*.

(3) That should ornithologists, in the teeth of the law, persist in disregarding this right, there is a strong probability, which may at any moment become a certainty, of its being indefeasibly established without reference to any exception whatever.

Finally, if the first of these positions be good, there is no need of the other two; for, according to our Code (§ 4):—"The generic name should always be retained for that portion of the original genus which was considered typical by the author."

Magdalene College, Cambridge.

12th December, 1875.

XII.—*Notes on the Birds of the Lower Petchora.* By HENRY SEEBOHM, F.Z.S., and JOHN A. HARVIE BROWN.

THE ornithology of the valley of the Petchora has remained up to the present time, if not altogether unknown, at least undescribed. The geology, botany, and ethnology of the district have been described by Keyserling, Schrenk and Castren; but nothing has been published upon the birds of the Petchora. We ascertained in Archangel that Hencke and Hoffmannsegg visited the great river, and sent consignments of skins and eggs to a dealer in Dresden, through whom some rare eggs (doubtless from this district) found their way to Dunn and were distributed amongst English collectors. In consequence of the trade-jealousy of the dealers, these eggs were sold without authentication, and of course possess no scientific value whatever. We have been unable to ascertain that either of the above-named ornithologists has ever written